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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/583,417	04/26/2007	Adrien Dromard	1022702-000308	3689

21839 7590 02/17/2009
BUCHANAN, INGERSOLL & ROONEY PC
POST OFFICE BOX 1404
ALEXANDRIA, VA 22313-1404

EXAMINER

HANOR, SERENA L

ART UNIT	PAPER NUMBER
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1793

NOTIFICATION DATE	DELIVERY MODE
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02/17/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/583,417	Applicant(s) DROMARD ET AL.	
	Examiner SERENA L. HANOR	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claims 16, 19, 20 and 27 are objected to because of the following informalities:

1. In claim 16 line 7, the particle size range is listed as 30 microns-20 mm, which is not consistent with the range <30 microns of claim 15.
2. In claim 19 line 1, the claim is dependent on a cancelled claim.
3. In claim 20 line 2, the range is inconsistent with the range of claim 15.
4. In claim 27 line 2, "15as" should read --15 as--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 19, 21-23 and 26-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

1. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a

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question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949).

- a. In the present instance, claim 19 recites the broad recitation <30 microns, and the claim also recites <20 microns, 5-15 microns, and 8-13 microns, which are narrower statements of the range/limitation.
 - b. In the present instance, claim 21 recites the broad recitation <=35 microns, and the claim also recites <=25 microns, which is the narrower statement of the range/limitation.
 - c. In the present instance, claim 22 recites the broad recitation <=30 m²/g, and the claim also recites <=10 m²/g, which is the narrower statement of the range/limitation.
 - d. In the present instance, claim 23 recites the broad recitation <=0.3 g/ml, and the claim also recites 0.04-0.3 g/ml, which is the narrower statement of the range/limitation.
 - e. In the present instance, claim 25 recites several broad recitations, and the claim also recites several narrower statements of the range/limitation.
2. Claim 25 recites the limitation "the medium" in line 2 of part b. There is insufficient antecedent basis for this limitation in the claim.

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3. Claims 26-30 provide for the use of the precipitated silica of claim 15, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claims 26-30 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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Claim 25 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 28, 42, 58 and 59 of copending Application No. 10/500,107. Although the conflicting claims are not identical, they are not patentably distinct from each other because both are drawn to substantially the same process of preparing silica.

Application No. 10/500,107 differs from the instant invention in that it does not mention a reaction temperature range in claim 28, which is the independent process claim.

It would have been obvious to one of ordinary skill in the art at the time of the invention **to have known** that the process should be carried out at a constant temperature of 90-100C, as per Applicants' claim 25, **because** dependent claim 42 of Application No. 10/500,107 claims such a temperature range. Furthermore, a prima facie case of obviousness exists in the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art". *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). Furthermore, "[A] prior art reference that discloses a range encompassing a somewhat narrower claimed range is sufficient to establish a prima facie case of obviousness." *In re Peterson*, 315 F.3d 1325, 1330, 65 USPQ2d 1379, 1382-83 (Fed. Cir. 2003). See MPEP 2144.05 [R-5].

Application No. 10/500,107 differs from the instant invention in that it does not mention smaller reaction pH ranges in claim 28, which is the independent process claim.

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It would have been obvious to one of ordinary skill in the art at the time of the invention **to have known** that the process could be carried out with narrower pH ranges, as per Applicants' claim 25, **because** dependent claims 58 and 59 of Application No. 10/500,107 claim such narrower pH ranges. Furthermore, a prima facie case of obviousness exists in the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art". *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). Furthermore, "[A] prior art reference that discloses a range encompassing a somewhat narrower claimed range is sufficient to establish a prima facie case of obviousness." *In re Peterson*, 315 F.3d 1325, 1330, 65 USPQ2d 1379, 1382-83 (Fed. Cir. 2003). See MPEP 2144.05 [R-5].

Application No. 10/500,107 differs from the instant invention in that it does not include an optional step of washing between the filtering and drying, and the filtering and drying are combined into one step e, whereas in the instant claim 25 they are separated into 2 steps e and f.

It would have been obvious to one of ordinary skill in the art at the time of the invention **to have modified** the instant process to not include the optional washing step, as per Applicants' claim 25, **because** according to the claim the washing step is optional.

Application No. 10/500,107 differs from the instant invention in that it does not include an optional step g of milling or micronizing the filtered and dried silica.

It would have been obvious to one of ordinary skill in the art at the time of the invention **to have modified** the instant process to not include the optional milling or micronizing step, as per Applicants' claim 25, **because** according to the claim the milling or micronizing step is optional.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The person having ordinary skill in the art has the capability of understanding the scientific and engineering principles applicable to the claimed invention. The references of record in this application reasonably reflect this level of skill.

1. Claims 15-30 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Chevallier et al. (WO 01/93803 A2, using U.S. Patent No. 7,033,576 B2 as an English translation).

Chevallier et al. disclose a precipitated silica with the following characteristics:

- CTAB of 100-200 m²/g (col. 1 lines 35-36, *Applicants' claims 15-18*);
- DOP oil uptake of >250 (col. 1 lines 32-34, *Applicants' claims 15-18*);
- pH of 3.5-9 (col. 1 lines 30-31, *Applicants' claims 15-17*);
- residual anion level ≤3% (col. 1 lines 40-42, *Applicants' claims 15, 16 and 18*);
- mean particle size of ≥20 microns (col. 1 lines 37-39, *Applicants' claims 15, 16, 19 and 20*);

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- a median particle diameter after deagglomeration under ultrasound of ≤ 35 microns (col. 3 lines 17-19, *Applicants' claim 21*);
- BET of 90-280 m^2/g , such that the BET-CTAB difference could be $\leq 30 \text{ m}^2/\text{g}$ or $\leq 10 \text{ m}^2/\text{g}$ (col. 1 lines 50-54, *Applicants' claim 22*);
- a packing density of $\geq 0.17 \text{ g/ml}$ (tamped) or $\geq 0.13 \text{ g/ml}$ (untamped) (col. 1 lines 62-67, *Applicants' claim 23*);
- in the form of a powder (col. 6 lines 10-16, *Applicants' claim 24*).

The silica may be used as a thickening agent in a dentifrice composition in the paste or gel form (col. 6 lines 17-44, *Applicants' claim 29*).

Chevallier et al. disclose a process for preparing the above silica comprising:

- a) producing a starting vessel heel with a temperature of 80-100°C, or $\geq 90^\circ\text{C}$, comprising water and a silicate, with a concentration of silicate in said vessel heel, expressed as SiO_2 equivalent, of $\leq 15 \text{ g/l}$ (col. 4 lines 24-27);
- b) adding, at a temperature of 80-100°C, or 90-100°C, an acidifying agent to bring the pH of the medium to a value of 7-8 or 7.3-7.8 to form a medium (col. 4 lines 31-32, col. 5 lines 31-33);
- c) in the medium thus produced in stage b, carrying out, at 80-100°C or 90-100°C, a simultaneous addition of a silicate and of an acidifying agent, with a respective amounts of silicate and of acidifying agent added over time being specifically chose so that throughout the duration of the addition, the pH of the reaction medium remains 7-8 or 7.2-7.8 and the concentration of the silicon in the medium remains $\leq 35 \text{ g/l}$;

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- d) adding, at a temperature of 80-100°C, or 90-100°C, an acidifying agent to the medium obtained on conclusion of stage c so as to bring the medium to a pH of 3-6.5 to obtain an aqueous silica dispersion;
- e) filtering the aqueous silica dispersion obtained in stage d to obtain a filtration cake;
- f) drying the filtration cake produced on conclusion of the stage e, optionally washing it beforehand; and
- g) optionally milling or micronizing the silica obtained on conclusion of stage f, wherein the filtration cake exhibits, prior to the drying of it in stage f, a loss on ignition at 1000°C of greater than 82% or 84-88% (col. 3 lines 22-55, col. 3 lines 40-41 and lines 59-65, col. 4 lines 50-65, *Applicants' claim 25*).

Chevallier et al. differ from the instant invention in that they disclose a CTAB specific surface area range, a DOP oil uptake range, a pH range, a residual anion level range, a mean particle size range, a BET specific surface area range, and a packing density range that overlap and/or lie within the ranges of the instant invention.

It would have been obvious to one of ordinary skill in the art at the time of the invention **to have produced** a silica with a CTAB specific surface area, a DOP oil uptake, a pH, a residual anion level, a mean particle size, a BET specific surface area, and a packing density as per the instant invention, as per Applicants' claims 15-23, **because a prima facie case of obviousness exists** in the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art". *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). Furthermore, "[A] prior art reference that discloses a range

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encompassing a somewhat narrower claimed range is sufficient to establish a prima facie case of obviousness.” *In re Peterson*, 315 F.3d 1325, 1330, 65 USPQ2d 1379, 1382-83 (Fed. Cir. 2003). See MPEP 2144.05 [R-5].

Chevallier et al. differ from the instant invention in that they do not disclose the water uptake of the silica.

It would have been obvious to one of ordinary skill in the art at the time of the invention **to have expected** the silica of Chevallier et al. to have a water uptake similar to that of the instant invention, as per Applicants’ claims 15-17, **because** “[T]he discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art’s functioning, does not render the old composition patentably new to the discoverer.” *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). See MPEP 2112 [R-3] I. Because the silica of Chevallier et al. and of the instant invention have similar physicochemical properties and the water uptake is determined by said properties, the water uptake of the silica of Chevallier et al. must be the same as that of the instant invention. Furthermore, both silicas are made by substantially the same process.

Chevallier et al. differ from the instant invention in that they disclose a mean particle size that is slightly greater than that of the instant invention.

It would have been obvious to one of ordinary skill in the art at the time the invention was made **to have produced** a silica with a slightly smaller particle size than that of Chevallier et al. as per Applicants’ claim 19, **because** a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but

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are close enough that one skilled in the art would have expected them to have the same properties. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985).

Chevallier et al. differ from the instant invention in that they disclose a silica concentration of the starting vessel heel that overlaps and/or lies within the range of the instant invention.

It would have been obvious to one of ordinary skill in the art at the time of the invention **to have started** with a silica concentration as per the instant invention, as per Applicants' claim 25, **because** a prima facie case of obviousness exists in the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art". *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). Furthermore, "[A] prior art reference that discloses a range encompassing a somewhat narrower claimed range is sufficient to establish a prima facie case of obviousness." *In re Peterson*, 315 F.3d 1325, 1330, 65 USPQ2d 1379, 1382-83 (Fed. Cir. 2003). See MPEP 2144.05 [R-5]. Generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Chevallier et al. differ from the instant invention in that they disclose a reaction temperature range that overlaps and/or lies within the range of the instant invention.

It would have been obvious to one of ordinary skill in the art at the time of the invention **to have selected** a reaction temperature as per the instant invention, as per Applicants' claim 25, **because** a prima facie case of obviousness exists in the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art". *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). Furthermore, "[A] prior art reference that discloses a range encompassing a somewhat narrower claimed range is sufficient to establish a prima facie case of obviousness." *In re Peterson*, 315 F.3d 1325, 1330, 65 USPQ2d 1379, 1382-83 (Fed. Cir. 2003). See MPEP 2144.05 [R-5]. Generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Chevallier et al. differ from the instant invention in that they disclose a pH range of steps b-d that overlaps and/or lies within the range of the instant invention.

It would have been obvious to one of ordinary skill in the art at the time of the invention **to have selected** a pH as per the instant invention, as per Applicants' claim 25, **because** a prima facie case of obviousness exists in the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art". *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). Furthermore, "[A] prior art reference that discloses a range

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encompassing a somewhat narrower claimed range is sufficient to establish a prima facie case of obviousness.” *In re Peterson*, 315 F.3d 1325, 1330, 65 USPQ2d 1379, 1382-83 (Fed. Cir. 2003). See MPEP 2144.05 [R-5].

Chevallier et al. differ from the instant invention in that they disclose a loss on ignition at 1000°C that overlaps and/or lies within the range of the instant invention.

It would have been obvious to one of ordinary skill in the art at the time of the invention **to have expected** the silica of Chevallier to have a loss on ignition similar to that of the instant invention, as per Applicants’ claim 25, **because** a prima facie case of obviousness exists in the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art”. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). Furthermore, “[A] prior art reference that discloses a range encompassing a somewhat narrower claimed range is sufficient to establish a prima facie case of obviousness.” *In re Peterson*, 315 F.3d 1325, 1330, 65 USPQ2d 1379, 1382-83 (Fed. Cir. 2003). See MPEP 2144.05 [R-5].

Chevallier et al. differ from the instant invention in that they do not disclose the concentration of the silicon in the medium during step c.

It would have been obvious to one of ordinary skill in the art at the time of the invention **to have expected** the silicon concentration of the medium during step c to be similar to that of the instant invention, as per Applicants’ claim 25, **because** differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or

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temperature is critical. “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). Generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical.

Chevallier et al. differ from the instant invention in that they disclose milling and then drying the silica, instead of drying and then milling.

It would have been obvious to one of ordinary skill in the art at the time of the invention **to have changed** the order of the process steps such that the silica were dried and then milled, as per Applicants’ claim 25, **because** the selection of any order of performing process steps is *prima facie* obvious. See *Ex parte Rubin*, 128 USPQ 440 (Bd. App. 1959), *In re Burhans*, 154 F.2d 690, 69 USPQ 330 (CCPA 1946), and *In re Gibson*, 39 F.2d 975, 5 USPQ 230 (CCPA 1930). See MPEP 2144.04 [R-6] IV C.

Chevallier et al. differ from the instant invention in that they do not disclose the use of the silica in shoe soles, as a reinforcing filler in a matrix, in a carrier for liquids, or in battery separators.

It would have been obvious to one of ordinary skill in the art at the time of the invention **to have used** the silica of Chevallier et al. in shoe soles, as a matrix reinforcing filler, in a liquid carrier, or in battery separators, as per Applicants’ claims 26-28 and 30, **because** “[T]he discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art’s functioning, does not

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render the old composition patentably new to the discoverer.” *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). See MPEP 2112 [R-3] I.

2. Claims 15-30 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over et al. (WO 03/055801 A1, using U.S. Patent Application Publication No. 2005/0074386 A1, i.e. Application No. 10/500,107, on which a Notice of Allowance has been issued on claims 28-47, 49, 50 and 55-60, which have included as an NPL reference).

The applied reference has a common assignee and 2 common inventors with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

Valero et al. disclose a precipitated silica with the following characteristics:

- CTAB of 100-200 m²/g (p. 6 [0083], *Applicants’ claims 15-18*);
- DOP oil uptake >200 ml/100g (p. 6 [0084], *Applicants’ claims 15-18*);
- Water uptake of 4-5.8% (p. 5 [0080], *Applicants’ claims 15-17*);
- pH of 4.8-6 (p. 6 [0087], *Applicants’ claims 15-17*);
- residual anion level of ≤0.5% (p. 6 [0085-0086], *Applicants’ claims 15-18*);

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- mean particle size of 3-15 microns (p. 5 [0074], *Applicants' claims 15, 16, 19 and 20*);
- BET of 100-200 m²/g, such that the BET-CTAB difference could be ≤ 30 m²/g or ≤ 10 m²/g (p. 5-6 [0082], *Applicants' claim 22*);
- a packing density of 0.1-0.3 g/ml (p. 5 [0075], *Applicants' claim 23*);
- in the form of a powder (p. 5 [0074], *Applicants' claim 24*).

The silica may be used in shoe soles (p. 8 [0123], *Applicants' claim 26*), as a reinforcing filler in a matrix (p. 2 [0024], p. 7-8 [0121-0122], *Applicants' claim 27*), in a carrier for liquids (p. 8 [0124], *Applicants' claim 28*), or as a thickening agent in a dentifrice composition in the paste or gel form (p. 8 [0124], *Applicants' claim 29*).

Valero et al. disclose a process for preparing the above silica comprising:

- a) producing a starting vessel heel with a temperature of 80-100°C, or $\geq 90^\circ\text{C}$ (p. 3 [0045]), comprising water and a silicate, with a concentration of silicate in said vessel heel, expressed as SiO₂ equivalent, of ≤ 15 g/l (p. 2 [0029] and [0039]);
- b) adding, at a temperature of 80-100°C, or 90-100°C (p. 3 [0045]), an acidifying agent to bring the pH of the medium to 7-8 or 7.3-7.8 to form a medium (p. 2 [0030]);
- c) in the medium thus produced in stage b, carrying out, at 80-100°C or 90-100°C (p. 4 [0058]), a simultaneous addition of a silicate and of an acidifying agent, with a respective amounts of silicate and of acidifying agent added over time being specifically chose so that throughout the duration of the addition, the pH of the reaction medium remains 7-8 or 7.2-7.8 and the concentration of the silicon in the medium remains ≤ 35 g/l (p. 2 [0031-0033]);

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d) adding, at a temperature of 80-100°C, or 90-100°C (p. 4 [0063]), an acidifying agent to the medium obtained on conclusion of stage c so as to bring the medium to a pH of 3-6.5 to obtain an aqueous silica dispersion (p. 2 [0034]);

e) filtering the aqueous silica dispersion obtained in stage d in order to obtain a filtration cake (p. 2 [0035], p. 4 [0068-0069]);

f) drying the filtration cake produced on conclusion of the stage e, optionally washing it beforehand (p. 2 [0035], p. 4 [0068-0069]); and

g) optionally milling or micronizing the silica obtained on conclusion of stage f (p. 4-5 [0071]), wherein the filtration cake exhibits, prior to the drying of it in stage f, a loss on ignition at 1000°C of greater than 82% or 84-88% (p. 2 [0029-0039], p. 4 [0064]), *Applicants' claim 25*).

Valero et al. differ from the instant invention in that they disclose a silica with a CTAB specific surface area range, a DOP oil uptake range, a pH range, a mean particle size range, a BET specific surface area range, and a packing density range that overlap and/or lie within the instantly claimed ranges

It would have been obvious to one of ordinary skill in the art at the time of the invention **to have produced** a silica with a CTAB specific surface area, a DOP oil uptake range, a pH, a mean particle size, a BET specific surface area, and a packing density as per the instant invention, as per Applicants' claims 15-23, **because a prima facie case of obviousness exists** in the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art". *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

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Furthermore, "[A] prior art reference that discloses a range encompassing a somewhat narrower claimed range is sufficient to establish a prima facie case of obviousness." *In re Peterson*, 315 F.3d 1325, 1330, 65 USPQ2d 1379, 1382-83 (Fed. Cir. 2003). See MPEP 2144.05 [R-5].

Valero et al. differ from the instant invention in that they disclose a DOP oil uptake (ideally 200-300) that is slightly less than the instantly claimed range.

It would have been obvious to one of ordinary skill in the art at the time the invention was made **to have produced** a silica with a slightly larger DOP oil uptake, as per Applicants' claims 16-18, **because** a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985). The silica of Valero et al. and the instant silica are made by the exact same process, so it would be reasonable to assume that the process of Valero et al. could yield a silica with a DOP oil uptake as per the instant silica.

Valero et al. differ from the instant invention in that they disclose a pH range throughout that process that overlaps and/or lies within the instantly claimed ranges.

It would have been obvious to one of ordinary skill in the art at the time of the invention **to have maintained** the pH of the reaction medium at a pH within the instantly claimed range, as per Applicants' claims 15-23, **because** a prima facie case of obviousness exists in the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art". *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976);

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In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). Furthermore, "[A] prior art reference that discloses a range encompassing a somewhat narrower claimed range is sufficient to establish a prima facie case of obviousness." *In re Peterson*, 315 F.3d 1325, 1330, 65 USPQ2d 1379, 1382-83 (Fed. Cir. 2003). See MPEP 2144.05 [R-5].

Valero et al. differ from the instant invention in that they do not disclose a median particle diameter after deagglomeration under ultrasound of ≤ 35 microns or ≤ 25 microns.

It would have been obvious to one of ordinary skill in the art at the time of the invention **to have expected** the silica of Valero et al. to have a median particle diameter after deagglomeration under ultrasound as per the instant invention, as per Applicants' claim 21, **because** "[T]he discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer." *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). See MPEP 2112 [R-3] I. Furthermore, both silicas are made by the same process, so it is reasonable to expect them to have the same properties.

Valero et al. differ from the instant invention in that they do not disclose the use of the silica in battery separators.

It would have been obvious to one of ordinary skill in the art at the time of the invention **to have used** the silica of Valero et al. in battery separators, as per Applicants' claim 30, **because** "[T]he discovery of a previously unappreciated property

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of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer." *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). See MPEP 2112 [R-3] I.

Conclusion

Claims 15-30 have been rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SERENA L. HANOR whose telephone number is (571)270-3593. The examiner can normally be reached on Monday - Thursday 8:00 AM - 5:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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SLH

/Timothy C Vanoy/
Primary Examiner, Art Unit 1793